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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,960

05/24/2006

Masahiko Suzuki

P/528-69

2773

2352 7590 01/19/2007  
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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT

PAPER NUMBER

3745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/19/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/576,960	<b>Applicant(s)</b> SUZUKI, MASAHIKO	
	<b>Examiner</b> Christopher Verdier	<b>Art Unit</b> 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

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Receipt and entry of Applicant's Preliminary Amendment dated April 21, 2006 is acknowledged.

### *Drawings*

The drawings are objected to under 37 CFR 1.84(i) because figure 3 contains both a top plan view and a front view, which must be shown as separate views. The specification should be amended accordingly. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

The abstract of the disclosure is objected to because it contains the phrase "The present invention relates to" (line 1) which is implied and should be deleted, and because in line 3, -- a -- should be inserted after "as". Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because it is replete with grammatical errors too numerous to mention in all instances. The following are several examples. The specification should be carefully proofread for additional defects. Appropriate correction is required.

On page 1, line 1, "SPECIFICATION" is superfluous and should be deleted.

On page 1, line 8, -- a -- should be inserted after "increase".

On page 5, line 16, -- the -- should be inserted after "enters".

On page 7, line 11, "robe" should be changed to -- lobe --.

Page 7, line 20 is non-idiomatic.

### *Claim Objections*

Claims 1-6 are objected to because of the following informalities: Appropriate correction is required.

In claim 1, line 1, "Vertical" should be changed to -- vertical --.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, line 3, "upper and lower ends" is indefinite because it is unclear which element this refers to. Claim 4, line 2 recites blades in the same level. There is no antecedent basis in the claims for the blades either being in a single level, or plural levels.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3, as far as they are definite and understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Evans 4,255,085. Note the vertical axis windmill with vertically arranged long blades 32 around a vertical main shaft 14, with tilted parts 40, 42 formed on the upper and lower ends of the blades, and a chord length of the blade appear to be approximately 45% of a radius of rotation of the blades. The blades are disposed at regular angles vertically so that the blades are positioned at regular angles around the vertical main shaft in a top plan view.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 6, as far as they are definite and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans 4,255,085 in view of Japanese Patent 2004-204,801. Evans discloses a vertical axis windmill substantially as claimed as set forth above, but does not disclose that the tilted part is inclined an angle of 30 to 40 degrees with respect to a vertical axis, and does not disclose that the end of the blades is elliptical.

Japanese Patent 2004-204,801 (figures 1 and 5) shows a vertical axis windmill having vertically arranged long blades 3 around a vertical main shaft 9 with tilted parts 3a, 3a formed on the upper and lower ends of the blades and inclined an angle of 35 to 45 degrees with respect to a vertical axis, for the purpose of providing more efficient rotation of the windmill.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the windmill of Evans such that the tilted part is inclined an angle of 35 to 40 degrees with respect to a vertical axis, as taught by Japanese Patent 2004-204,801, for the purpose of providing more efficient rotation of the windmill. Concerning the recitation that the end of the blade is elliptical, Official Notice is taken that windmill blades are conventionally

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made of blades having an end that is elliptical, for the purpose of improving the aerodynamic efficiency of the blades. It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified windmill of Evans such that the end of the blade is elliptical, for the purpose of improving the aerodynamic efficiency of the blades.

Claim 4, as far as it is definite and understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans 4,255,085 in view of Japanese Patent 57-146,066. Evans discloses a vertical axis windmill substantially as claimed as set forth above, but does not disclose that the blades are different from each other in distance from the vertical main shaft.

Japanese Patent 57-146,066 shows a windmill having blades 5, 7 which are different from each other in distance from an unnumbered main shaft, for the purpose of providing a constant total torque when wind speeds vary.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the windmill of Evans such that blades are different from each other in distance from the vertical main shaft, as taught by Japanese Patent 57-146,066, for the purpose of providing a constant total torque when wind speeds vary. Although Japanese Patent 57-146,066 discloses a horizontal axis windmill, one of ordinary skill in the art would have recognized the applicability to a vertical axis windmill, since the wind blows across the blades in both vertical and horizontal axis windmills.

Claim 5, as far as it is definite and understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans 4,255,085 in view of Japanese Patent 2003-21045. Evans discloses a vertical axis windmill substantially as claimed as set forth above, but does not disclose plural vertical main shafts arranged horizontally in a support frame of the windmill.

Japanese Patent 2003-21045 (figure 1) shows a vertical axis windmill with plural vertical main shafts 4A arranged horizontally in a support frame 5, 10 of the windmill, for the purpose of increasing the amount of wind power derived from a given area.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the windmill of Evans such that plural vertical main shafts are arranged horizontally in a support frame of the windmill, as taught by Japanese Patent 2003-21045, for the purpose of increasing the amount of wind power derived from a given area.

Claims 1 and 3, as far as they are definite and understood, are also rejected under 35 U.S.C. 103(a) as being unpatentable over Evans 4,255,085 in view of Dereng 4,264,279. Evans discloses a vertical axis windmill substantially as claimed, with vertically arranged long blades 32 around a vertical main shaft 14, with tilted parts 40, 42 formed on the upper and lower ends of the blades. The blades are disposed at regular angles vertically so that the blades are positioned at regular angles around the vertical main shaft in a top plan view.



However, Evans does not explicitly disclose that a chord length of the blade is 40% of a radius of rotation of the blades.

Dereng (figure 2 and column 2, lines 23-25) teaches that a vertical axis windmill with vertically arranged long blades 24 around a vertical main shaft 20 should have a chord length of the blade that is 40% of a radius of rotation of the blades, for the purpose of providing excellent self-starting and increased torque through an intermediate speed range.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the windmill of Evans such that a chord length of the blade is 40% of a radius of rotation of the blades, as taught by Dereng, for the purpose of providing excellent self-starting and increased torque through an intermediate speed range.

Claims 2 and 6, as far as they are definite and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans 4,255,085 and Dereng 4,264,279 as applied to claim 1 above, and further in view of Japanese Patent 2004-204,801. The modified windmill of Evans shows a vertical axis windmill substantially as claimed as set forth above, but does not show that the tilted part is inclined an angle of 30 to 40 degrees with respect to a vertical axis, and does not disclose that the end of the blades is elliptical.

Japanese Patent 2004-204,801 (figures 1 and 5) shows a vertical axis windmill having vertically arranged long blades 3 around a vertical main shaft 9 with tilted parts 3a, 3a formed on

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the upper and lower ends of the blades and inclined an angle of 35 to 45 degrees with respect to a vertical axis, for the purpose of providing more efficient rotation of the windmill.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified windmill of Evans such that the tilted part is inclined an angle of 35 to 40 degrees with respect to a vertical axis, as taught by Japanese Patent 2004-204,801, for the purpose of providing more efficient rotation of the windmill. Concerning the recitation that the end of the blade is elliptical, Official Notice is taken that windmill blades are conventionally made of blades having an end that is elliptical, for the purpose of improving the aerodynamic efficiency of the blades. It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified windmill of Evans such that the end of the blade is elliptical, for the purpose of improving the aerodynamic efficiency of the blades.

Claim 4, as far as it is definite and understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans 4,255,085 and Dereng 4,264,279 as applied to claim 1 above, and further in view of in view of Japanese Patent 57-146,066. The modified windmill of Evans shows a vertical axis windmill substantially as claimed as set forth above, but does not show that the blades are different from each other in distance from the vertical main shaft.

Japanese Patent 57-146,066 shows a windmill having blades 5, 7 which are different from each other in distance from an unnumbered main shaft, for the purpose of providing a constant total torque when wind speeds vary.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified windmill of Evans such that blades are different from each other in distance from the vertical main shaft, as taught by Japanese Patent 57-146,066, for the purpose of providing a constant total torque when wind speeds vary. Although Japanese Patent 57-146,066 discloses a horizontal axis windmill, one of ordinary skill in the art would have recognized the applicability to a vertical axis windmill, since the wind blows across the blades in both vertical and horizontal axis windmills.

Claim 5, as far as it is definite and understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Evans 4,255,085 and Dereng 4,264,279 as applied to claim 1 above, and further in view of in view of Japanese Patent 2003-21045. The modified windmill of Evans shows a vertical axis windmill substantially as claimed as set forth above, but does not show plural vertical main shafts arranged horizontally in a support frame of the windmill.

Japanese Patent 2003-21045 (figure 1) shows a vertical axis windmill with plural vertical main shafts 4A arranged horizontally in a support frame 5, 10 of the windmill, for the purpose of increasing the amount of wind power derived from a given area.

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It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified windmill of Evans such that plural vertical main shafts are arranged horizontally in a support frame of the windmill, as taught by Japanese Patent 2003-21045, for the purpose of increasing the amount of wind power derived from a given area.

### *Prior Art*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Japanese Patent 2002-235,656 is cited to show a vertical axis windmill with offset blades at different levels.

Japanese Patent 63-154,865 is cited to show a vertical axis windmill with blades at different levels.

Van Holten '469 and '644 is cited to show a windmill with tilted blade tips.

Lea and Allison are cited to show windmills with offset blades at different levels.

Soviet Union Patent 591,606 is cited to show a windmill with blades which are different from each other in distance from a main shaft.

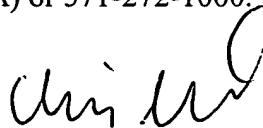
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C.V.  
January 8, 2007



Christopher Verdier  
Primary Examiner  
Art Unit 3745